

REMARKS

The Examiner objected to the typographical error on page 12, line 13. This is corrected by changing "surface of layer to" to "surface of the NiNb sealing layer to--".

35 USC 103 Rejections

Claims 2, 11, 18 and 21-23 were rejected as being obvious over Ross and Starcke in view of Taguchi. Claims 3 and 12 were rejected as being obvious over Ross, Starcke and Taguchi in view of Chen.¹ Claims 3 and 12 were rejected as being obvious over Ross, Starcke and Taguchi in view of Okamura. Claims 3 and 12 were rejected as being obvious over Ross, Starcke and Taguchi, and allegedly "in view of applicants' admissions." Claims 24 and 25 were rejected as being obvious over Ross in view of Starcke and further allegedly "in view of applicants' admissions." Applicants respectfully traverse these rejections.

Foremost, the undersigned thanks the Examiner for attending to the inquiries of Applicants regarding the scope a Declaration for overcoming the pending obviousness rejection.

The Examiner relied on Ross U.S. Patent No. 5,980,997 (Ross) for teaching an embodiment wherein "NiNb is sputtered directly onto the substrate 112." See column 8, lines 1 and 2 of Ross. The substrate of Ross is not a Li-containing substrate. Therefore, the Examiner cited Taguchi U.S. Patent No. 5,874,376 (Taguchi) for disclosing a Li-containing substrate.

Claims 21-23 previously recited the limitation "wherein the sealing layer has a thickness of about 450Å or less and substantially prevents migration of Li from the substrate to the magnetic layer of the magnetic recording medium." With respect to this limitation, the

¹ Note that Chen is not prior art under 35 USC 103(c) because it is assigned to the same assignee to which this invention is assigned.

Examiner's position was that this property would have been inherent in the NiNb layer when a person of ordinary skill would have combined the teachings of Ross and Tachuchi and thereby sputtered NiNb directly onto a Li-containing substrate.

The Examiner also recognized that Ross teaches that the NiNb layer should be laser textured. Therefore, during one of the telephone conversations with the Examiner, he said that he wants Applicants to "positively" state that a laser textured NiNb layer of 45 nm or less deposited directly on a Li-containing substrate would not necessarily prevent migration of Li from the substrate to the magnetic layer.

During another telephone conversation, the undersigned discussed the results shown in Table 1 and the subsequent two paragraphs on page 16 of the specification. In this context, the Examiner said that a claim reciting a thickness range of a NiNb layer that prevents Li migration would make the claim allowable if Applicants can explain that the NiNb layer alone of the magnetic recording media whose data is shown in Table 1 of the specification is critical in preventing Li migration, not the other layers above it.

In light of these helpful comments from the Examiner, Applicants are submitting herewith the Declaration of Professor Caroline Ross of MIT.² Professor Ross is the same "Ross" who is named as the first inventor on the Ross patent relied upon by the Examiner.

Professor Ross' Declaration does not need further elucidation. It speaks for itself. In paragraph 9, she states:

In particular, it is *not necessary* that a NiNb film of 450Å (45 nm) or less, or indeed of any material in this thickness range, subjected

² Professor Ross was paid \$1,500 by the assignee for the time spent in doing her analysis for and drafting of the Declaration. Professor Ross has no pending or proposed business relationship with the assignee.

to laser texturing, would prevent diffusion of Li, due to the unknown relationship between diffusion-barrier properties and bump formation in materials, and the unpredictable effects of laser texturing on the diffusion-barrier properties of thin films.
[Emphasis added.]

Note that the law requires that “the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). This is not the situation in this case.

Furthermore, she explains the following in paragraph 6 of the Declaration regarding the performance of the magnetic recording media shown in Table 1 of the specification as diffusion barriers:

From the Applicants’ data [Attachment B] on Li diffusion through a NiNb/CrMo/CoCrPtTa/C stack, it is clear that the NiNb is the active material in the diffusion barrier, while the CrMo/CoCrPtTa/C has little effect on diffusion.³

Independent claims 21-23 have been amended to recite that “the sealing layer has a thickness in a range of about 100Å to about 450Å.” The lower limit of the NiNb layer of 100Å is supported by the disclosure in Table 1, which shows that a 100Å thick NiNb layer reduces the Li counts/minute to 300 counts/minute, which is “to less than 500 counts/minute” recited in claims 21-23 in the definition of the sealing layer. Furthermore, the lower limit has been in response to the Examiner’s suggestion during a telephone conversation with the Examiner. The lower limit does not raise new issues because it is within the range of “450Å or less” previously recited in claims 21-23.

³ Attachment B of Professor Ross’ Declaration contains Table 1, wherein the data is obtained from Table 1 of the specification.

A person of ordinary skill in this art would not have expected that a NiNb layer in the claimed range could be capable of preventing Li migration. Applicants respectfully submit that they are the first ones to have *unexpectedly* recognized the outstanding Li diffusion barrier properties of a NiNb layer in the claimed thickness range. Professor Ross has eloquently explained this point further in her Declaration, and the Examiner is requested to kindly rely on Professor Ross' Declaration.

In light of the amendments to claims 21-23 and Professor Ross' Declaration, Applicants respectfully request withdrawal of the obviousness rejections.

Obviousness-type Double Patenting Rejection

Claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18 and 21-23 were rejected for obviousness-type double patenting over claims 1-20 of Chen '890 (U.S. Pat. No. 6,120,890) in view of Ross. This rejection is respectfully traversed and should be withdrawn for the same reasons that the obviousness rejections over Ross as the primary reference should be withdrawn.

In light of the above, a Notice of Allowance is respectfully solicited.

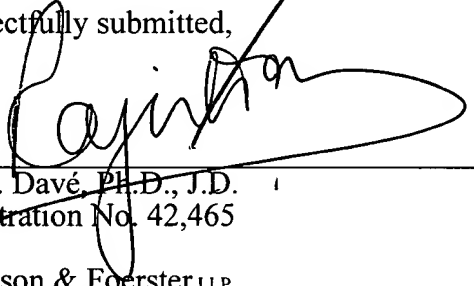
Attached hereto is a marked-up version of the changes made to the claims by this amendment. The attached pages are captioned "Version with markings to show changes made."

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952**, referencing docket number 146712000400.

Respectfully submitted,

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